**Transscleral cyclophotocoagulation as primary surgical treatment for medically uncontrolled malignant glaucoma**

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**Purpose:** To assess results of cyclophotocoagulation as a primary surgical treatment for medically uncontrolled malignant glaucoma

**Patients and methods:** A retrospective chart review was carried out of patients who were treated for malignant glaucoma at the Glaucoma Center, Department of Ophthalmology, First Faculty of Medicine, Charles University in Prague and General University Hospital in Prague between June 2009 and November 2012. 7 eyes with medically uncontrolled malignant glaucoma were treated with transscleral diode laser cyclophotocoagulation as a primary surgical treatment. All cyclophotocoagulation procedures were performed under peribulbar block using diode laser FOX (A.R.C. Laser). Standard laser parameters used were: duration of spot 2 s and energy 1.8-2 W. 12-15 laser spots were applied. Post treatment antiglaucoma medications were adjusted according to intraocular pressure. Minimal follow up period was 12 months. Main outcome criteria were age, time of diagnosis after surgery, intraocular pressure, complications and need for other surgical procedures postoperatively.

**Results:** Malignant glaucoma occurred in 4 patients after previous trabeculectomy and in 3 patients after cataract surgery. In trabeculectomy group, all patients were phakic. There were 4 women and 3 men in our group. Mean age was 60.71 years. Mean follow up period was 35.86 months. Mean IOP at the time of diagnosis was 45.43 mmHg (range from 25 to 69 mmHg). Mean interval from previous trabeculectomy was 14.6 days (range 5-24 days). Interval from surgery in cataract group varied from 23 days after surgery to 18 months. Mean postoperative IOP was 13.14 mmHg (range from 25 to 69 mmHg). Number of antiglaucoma medications used before surgery was 1.28 and decreased to 1.14 after the surgery. In 2 cases, IOP is controlled without antiglaucoma medications, 4 patients are using antiglaucoma medications (3 of them monotherapy and 1 fixed combination). IOP of one patient was not controlled after the surgery despite using maximal antiglaucoma medication. In this case, combined pars plana vitrectomy and phacoemulsification was indicated 42 days after cyclophotocoagulation. IOP of this patient is now controlled using 3 antiglaucoma drugs. There were no serious adverse events associated with cyclophotocoagulation. Visual acuity remained stable in both groups (phakic eyes after trabeculectomy and artephakic eyes).

**Conclusions:** Cyclophotocoagulation is an effective and minimally invasive method of primary surgical treatment of medically uncontrolled malignant glaucoma. It can be used as a safe method of management of malignant glaucoma in phakic eyes after previous trabeculectomy as well as artephakic malignant glaucoma.